Patent Application of

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for

TITLE: IMPROVED FOUNDATION REPAIR BRACKET

CROSS-REFERENCE TO RELATED APPLICATIONS:

Apparatus for Raising and Supporting a Building

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Building Foundation Stabilizing and Elevating Apparatus

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FEDERALLY SPONSORED RESEARCH Not Applicable

SEQUENCE LISTING OR PROGRAM Not Applicable

BACKGROUND OF THE INVENTION—FIELD OF INVENTION

This invention relates to the equipment used to level a foundation, specifically using hydraulic lifting systems and pilings driven through a bracket supporting the foundation.

BACKGROUND OF THE INVENTION

Prior art has suggested a method for raising a building foundation by means of a support bracket through which a piling is driven to bedrock. The bracket includes a horizontal beam used to support the foundation, a vertical sleeve and two side flanges used to attach a hydraulic lifting system. The bracket is welded together to form an inseparable assembly.

After the foundation is raised to the desired location, the bracket continues to function as a support when attached or pinned to the piling. The hydraulic system and linkages are removed and any piling above the bracket is removed.
At this point, the side flanges do not contribute to the foundation support.

SUMMARY OF THE INVENTION

It is therefore the object of the present invention to provide a more economical support bracket by allowing the side flanges to be removed after the leveling process and reused. It is also the object of the present invention to attach the side flanges to the bracket using only one threaded screw with a nut and one shouldered pin. The obvious benefit of simple attachment of the side flanges is speed of assembly and disassembly.

It is still further the object of this invention to locate the fasteners in the most accessible locations to allow disassembly where clearance is limited by the foundation and piling.

DRAWINGS--FIGURES

The summary of the invention and detailed description of the invention will be more fully appreciated by reference to the following drawings:

Figure 1 is a cross-sectional view of the foundation and structure with the bracket, piling, hydraulic system and linkages installed preparatory to leveling.

Figures 2 and 4a are perspective views of the bracket.

Figure 3 is an exploded view of the bracket.

Figure 5 is an enlarged sectional view of the flange latch bar and cylindrical pin.

DRAWINGS—Reference Numerals

10	bracket assembly	25L	flange mounting hole
11	lifting system	25R	flange mounting hole
12	piling	26	right flange hole
13	building foundation	27	left flange hole
14	cylindrical sleeve	28	upper retainer hole
15	flange	29	right retainer hole
16	cantilever beam	30	lower retainer hole
17	spacer	31	beam notch
18A	upper retainer plate	32	flange rect. hole
18B	lower retainer plate	33	pin retainer
19	right retainer plate	34	pin retainer
20	shouldered pin	35	pin
21	threaded screw	36	latch notch
22	nut	37	latch concave surface
23	latch bar		
24	lifting system attaching hole		

DETAILED DESCRIPTION

Figure 1 shows the bracket assembly placed under a building foundation 13. Reference number 10 refers in general to the bracket assembly. Prior art suggests a piling 12 is driven through the bracket sleeve 14 by means of a hydraulic system and linkages 11 connected to flanges 15 attached to the sleeve.

The building foundation is raised by a cantilever beam 16 applying force to the underside of the foundation. The cantilever beam is permanently attached to the sleeve.

Figure 2 shows a perspective view of the bracket 10 as assembled ready to be inserted under a foundation.

Figure 3 shows an exploded perspective view of the bracket with the flanges 15L and 15R removed. The right flange 15R has a mounting hole 24R used for attachment of a hydraulic system. The right flange also has a clearance hole 26 which accepts a threaded screw 21 that extends through the clearance holes 25R and 25L of a channel-shaped spacer 17 when assembled. The threaded screw also extends through the clearance hole 27 of the left flange 15L and is retained by a threaded nut 22.
The threaded screw which retains the two flanges to the channel-shaped spacer transfers the vertical forces acting on the flanges to the sleeve and cantilever beam.

A pair of retainer plates 18A and 18B is permanently attached to the left flange 15L. An opposing retainer plate 19 is permanently attached to the right flange 15R. When fully assembled, the retainer plate holes 28, 29 and 30 align to accept a shouldered pin 20. The shouldered pin inserted into the retainer plate clearance holes provides resistance to the moment forces resulting from the lifting motion of the hydraulic system.

A latch bar 23 is permanently attached to the left flange 15L. When the left flange is assembled, the latch bar extends through a rectangular hole 31 in the cantilever beam 16.

Figure 4 shows the latch bar also extending through a rectangular hole 32 in the right flange 15R and sandwiched between two pin retainers 33 and 34. The latch bar 23 has a notch 36. The outside edge of the notch 37 is a concave surface that engages a cylindrical pin 35. The pin extends across the full width of the lower edge of the rectangular hole 31 and is secured by pin retainers 33 and 34. The pin retainers are permanently attached to the right flange 15R. The concave surface 37 of the latch bar 23 engaging the cylindrical pin 35 eliminates the possibility of disengagement resulting from the extreme force of the lifting operation.

The hydraulic system 11 imparts a load to the flanges 15L and 15R which produces a tensile stress shared by the retainer plates 18A, 18B, 19 and the latch bar 23. The latch bar also resists a bending load at its midpoint caused by the upward motion of the hydraulic system translating to the flanges and pivoting about the threaded screw 21.